

BELLCOMM. INC.

SUBJECT: Minutes of the (GLEP) Site Selection
Subgroup Meeting of June 19, 1968
Case 340

DATE: July 3, 1968

FROM: F. El-Baz

ABSTRACT

The second meeting of the (GLEP) Site Selection Subgroup was held on June 19, 1968 at MSC. Twenty individuals participated in the meeting in which 20 high priority sites were selected, from a list of 60 sites, for detailed analysis by the Mapping Sciences Branch of MSC, in fiscal years 69-70. Of these 20 sites, the Subgroup selected 12 sites for analysis in FY-69: Mösting C, Censorinus, Fra Mauro Fm., Littrow, Hyginus, Rima Bode II, Tycho, Gassendi, Marius Hills, Apennines-Hadley, Copernicus, and Harbinger Mountains.

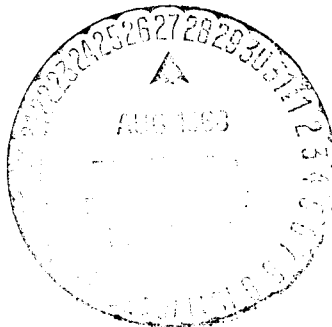
The selected sites were ordered in a time priority list and the areas of interest in each site were identified. The Subgroup also identified areas on the Moon's earthside that require further photography, and recommended six science-biased sites as candidates for the second Apollo mission.

(NASA-CR-96102) MINUTES OF THE /GLEP/ SITE
SELECTION SUBGROUP MEETING OF JUNE 19, 1968
(Bellcomm, Inc.) 10 P

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MEMORANDUM FOR FILE

I. INTRODUCTION

The Site Selection Subgroup⁽¹⁾ of the Group for Lunar Exploration Planning (GLEP), held a meeting on June 19, 1968 at Manned Spacecraft Center (MSC). The purpose of the meeting was to select about 20 high priority sites as "Set B" candidates for lunar exploration from a list of about 60 "Set A" sites⁽²⁾ which had been screened by the Mapping Sciences Branch of MSC. The 20 sites will undergo detailed analysis in the next two years.

The chairman of the Subgroup, Dr. N. W. Hinners of Bellcomm, called the meeting to order and discussed the agenda items which included:

1. Discussion of all sites consecutively and separately
2. Categorization of the "science" sites into groups
3. Discrimination between high and low priority sites
4. Delineation of the areas of interest in high priority sites
5. Evaluation of the position of current "landing circles" in terms of:
 - a) accessibility as a function of mobility
 - b) staytime duration
6. Summary evaluation of high priority sites to order them starting with the highest priority sites
7. Identification of sites needing further photography, including sites not covered in the original Set A list and sites previously photographed by a single frame or in medium resolution only.

(1) See Appendix A for members and invited participants.

(2) See Appendix B for list of sites considered.

II. REMARKS

The discussion of sites went smoothly, thanks to the efficient organization of representatives of the MSC Mapping Science Branch. Detailed records of the discussions on each site are available, from the Secretary, to members of the Subgroup.

Some of the noteworthy general remarks include the following:

- An appeal by Paul Gast (Lamont) to observe the selenographic distribution of sites, especially in higher latitudes. His views were shared by Gene Simmons (MIT) since it is important to geophysicists that good seismic networks be established on the lunar surface.
- A suggestion by Don Wilhelms (USGS) to introduce a "limbo" category of sites, which would include back-up and replacements for high priority sites.
- A comment by Robert Bryson (NASA) that there should be more emphasis on mare (wrinkle) ridges than what exists. He pointed out that careful studies of these ridges would be most valuable in unraveling the origin of the maria and many other lunar surface features. Dennis James (Bellcomm) intimated that almost all of the science-biased landing sites proposed for the second Apollo mission cover wrinkle ridges of one sort or another.
- A suggestion by Noel Hinners, Bellcomm, that the Subgroup also consider potential sites for a "single site option". There was little enthusiasm for this, but no objection to using either the Marius Hills or Gassendi for planning exercises, although the latter is favored by astronomers on account of its southern latitude.

III. RESULTS

The most important outcome of the meeting was the selection of 20 high priority sites, thus meeting the first requirement of the Mapping Sciences Branch. These sites were further categorized into groups in accordance with a sequence in the GLEP Lunar Exploration Plan as shown in Table I, a "time priority" list of the selected sites.

J. Sasser (MSC/Mapping Science Branch) requested further that the Subgroup select about 10 of the 20 sites

to be analyzed in the fiscal year starting July, 1968. The Subgroup responded and selected 12 sites for this purpose. It is interesting to note that these sites include all those previously selected by the GLEP for their proposed Lunar Exploration Plan.

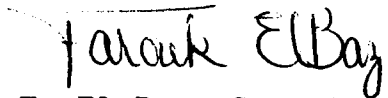
The subgroup also identified areas of interest on the Moon's earthside which are candidates for future photography (see Table II). The kind of photographic coverage was not specified, but it was clear that something approaching site survey quality would be required.

From the discussion of the sites, it became apparent that the membership of the Subgroup feels strongly about recommending to the GLEP and to the Apollo Site Selection Board (ASSB) that the science-biased sites indicated in Table III be considered for the second Apollo mission.

The Subgroup also selected preferred landing areas in all 20 high priority sites to limit the detailed analysis to areas of salient scientific value.

Most of the objectives of the meeting were met successfully and a follow-up of all recommendations is proceeding.

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F. El-Baz, Secretary

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TABLE I

TIME PRIORITY LIST OF SITES

1. <u>Apollo (3rd mission)</u>	2. <u>Extended LM</u>	3. <u>Dual and 1 1/2</u>
* Mösting C	* Littrow	* Marius Hills
* Censorinus	Abulfeda	* Apennines-Hadley
* Fra Mauro Fm.	* Hyginus	Alphonsus
	* Rima Bode II	* Copernicus (1 1/2)
	* Tycho	* Harbinger Mts (1 1/2)
	Schröter's Valley & Aristarchus Plateau	
	* Gassendi	
	Aristarchus	
	Dionysius	
	S. Alexander	
	Tobias Mayer Dome	
	Copernicus CD	

NOTES: * Sites marked by an asterisk are of high priority for detailed analysis in FY-69. The remainder would be analyzed in FY-70.

- The order in which sites appear within a mission type does not imply an ordering in scientific interest or sequence in an exploration plan.

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TABLE II

LIST OF SITES RECOMMENDED FOR FURTHER PHOTOGRAPHY

I	S-13	Gambart (?)
II	S-10.2	Gambart C
III	S-16	Mösting
III	S-18	Mösting C
III	S-31	Hevelius
IV	Frame 86	Posidonius
IV	Frame 89	Descartes
IV	Frame 97	Boscovich
IV	Frame 108	Davy
V	V-12	Censorinus
V	V-15.1	Dawes
V	V-19	Abulfeda
V	V-26	Rima Hadley
V	V-33	Copernicus CD
V	V-41	Vitello

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TABLE III

SITES RECOMMENDED FOR THE SECOND APOLLO MISSION

<u>Designation</u>	<u>Science-biased area of interest</u>
II P-2	Mare/terra contact
II P-8	Mare (wrinkle) ridge
III P-11	Mare (wrinkle) ridge
III P-12	Flamstead ring (scarp)
V V-8	Several features (Site has not been analyzed)
V V-24	Hipparchus (Site has not been analyzed)

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APPENDIX A

Participants of the (GLEP) Site Selection Subgroup, Mtg. #2

Members of Subgroup

D. A. Beattie, NASA HQ/MAL (Rep. by R. P. Bryson)
J. W. Dietrich, MSC/TH2 (Rep. by D. S. McKay)
F. El-Baz, Bellcomm (Secretary)
L. W. Frederick , University of Virginia
P. Gast, Lamont Geological Observatory
W. N. Hess, MSC/TA
R. L. Kovach, Stanford University
N. W. Hinnners, Bellcomm (Chairman)
A. A. Loomis, Jet Propulsion Laboratory
H. Masursky, U.S. Geological Survey
H. H. Schmitt, MSC/CB (Absent)
G. Simmons, M.I.T.
D. Wilhelms, U.S. Geological Survey

Other Participants

Q. A. Holmes, MSC/FM5
D. B. James, Bellcomm
M. D. Kitchens, MSC/ET25
A. J. Meyer, MSC/ET
J. H. Sasser, MSC/TH3
F. N. Schmidt, Bellcomm
L. C. Wade, MSC/TH3
V. R. Wilmarth, NASA HQ/MAL

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APPENDIX B

LIST OF SITES CONSIDERED IN THE SITE SELECTION MEETING

II P-1	III P-12	V V-26.1
II S-1	III S-15	V V-28
II P-2	III S-16	V V-29
II S-2	III S-17	V V-30
II P-3	III S-18	V V-31
II P-4	III S-19	V V-32
II P-5	III S-22	V V-33
II S-6	III S-31	V V-34
II P-8	V V-1	V V-35
II S-8	V V-2.1	V V-36
II S-9	V V-4	V V-37
II P-7	V V-8	V V-38
II S-10.2	V V-12	V V-40
II S-11	V V-14	V V-41
II P-9	V V-15.1	V V-43.2
II P-10	V V-18	V V-45.1
II P-12	V V-19	V V-46
II S-13	V V-21	V V-48
II S-16	V V-22	V V-49
II S-9	V V-23.1	V V-50
II S-10	V V-24	V V-51

*See detailed descriptions in: "Screening for Lunar Exploration Landing Sites", Report by R. M. Biniki, W. H. Arant and I. E. Duggan, Mapping Science Branch, MSC, 27 May, 1968.

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From: F. El-Baz

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